



Appl. No.  
Filed JUL 12 2004

09/552,981  
April 21, 2000

# AMENDMENTS TO THE SPECIFICATION

RECEIVED

JUL 16 2004

Technology Center 2600

Please amend the specification as follows:

Please amend the paragraph beginning on line 5 of page 10 as follows:

-- The microcontroller 142, in this embodiment, also receives a signal from a program mode select switch 150, comprising switch S1 that is attached to the casing 111 of the remote interface circuit 110. The program mode select switch 150 when selected, instructs the microcontroller 142 to enter a program mode, allowing the microcontroller 142 to learn and record the specific control functions selected on the stereo controls 106, 114, 130 and the handheld remote control 160. These signals are stored in non-volatile memory 144 located on-board the remote interface circuit 110. It will be appreciated that the pre-selected specific control functions selected on the stereo controls 106, 114, 130 and the handheld remote control 160 will not be lost upon the removal of vehicle power when the ignition is switched off to the remote interface circuit 110 and the microcontroller 142. The microcontroller 142, when not in a program mode, may be in a run mode or an off state. A flowchart of the program mode and run mode shall be discussed in reference to Figures 5A and 5B below. --

Please amend the first complete paragraph of page 11 as follows:

-- Figure 4A is a schematic circuit diagram of the remote interface circuit 110, wherein the remote interface circuit 110 is comprised of the microcontroller 142, comprising integrated circuit U1, the non-volatile memory 144, comprising integrated circuit U2, a plurality of inputs to the microcontroller 142 and outputs from the microcontroller 142. In particular, in this embodiment, the local stereo controls 106 form a voltage divider network that connects to the vehicle ignition voltage source with respect to reference voltage V<sub>SS</sub>. As a local stereo control 106 is selected, the corresponding resistive network is 'placed' in the circuit and the voltage drop across this resistive element is applied to an analog-to-digital input port of the microcontroller 142. The resistive network of the local stereo controls 106 is comprised of a plurality of resistors (R<sub>v</sub>, R<sub>w</sub>, R<sub>x</sub>, R<sub>y</sub>, etc.) in a series configuration along with a plurality of corresponding switches (Sw1, Sw2, Sw3, Sw4, etc.). One side of each of the switches (Sw1, Sw2, Sw3, Sw4, etc.) is connected together and in a series configuration with resistor R<sub>j</sub> (R3) which is located on-board the remote interface circuit 110. --

Appl. No. : 09/552,981  
Filed : April 21, 2000

Please amend the second complete paragraph of page 12 as follows:

-- In the illustrated embodiment, a GM-Chrysler selector switch 151, comprising switch S2 is also located on-board the remote interface circuit 110. In particular, the remote interface circuit 110 incorporates the GM-Chrysler selector switch 151 such that when placed in the GM position allows for a voltage drop produced across R2 to be fed to another A-to-D input port of the microcontroller 142. As with the voltage divider networks configured within the local stereo controls 106, the series combination of resistor R1 and R2 also form a voltage divider network with a tap formed at the node of R1 and R2 and the vehicle ignition again serving as a voltage excitation source. The sampled voltage by the microcontroller 142 at this R1 and R2 node forms a reference voltage level against which the same ignition voltage excites the network formed by the local stereo controls 106 and produces selected output voltages. A software algorithm that runs in the microcontroller 142 measures these voltages and provides compensation for voltage fluctuations that occur on the vehicle ignition when the vehicle is a General Motors product. Moreover, when the GM-Chrysler selector switch 151 is placed in the Chrysler position, the reference voltage now becomes VDD (+5VDC) shown in Figure 4A at output pin 3 of voltage regulator U3. Chrysler vehicles currently use a regulated +5 VDC supply that does not change with ignition voltage conditions. --

Please amend the second complete paragraph of page 13 as follows:

-- In this embodiment, the remote interface circuit 110 receives a modulated carrier signal from the handheld remote control 160 that is then provided to the microcontroller 142. In particular, the modulated carrier signal is provided by the detector stage 152 to a bi-directional input-output port of the microcontroller 142. Subsequently, the data pattern received by the microcontroller 142 from the detector stage 152 is stored in the non-volatile memory 144 via a serial data transfer link from the microcontroller 142 that has ~~two~~ pull-up resistors R7, R8, R10 and R11. As will be described in greater detail below, this stored data pattern can be retrieved at a later time for use in the run mode such that the remote interface circuit 110 can reproduce the wireless signal produced by the handheld remote control 160 to change a stereo function in response to receiving a corresponding command from the local stereo controls 106. --

Appl. No. : 09/552,981  
Filed : April 21, 2000

Please amend the paragraph beginning on page 13, line 31 as follows:

-- The remote interface circuit 110 also includes several output devices including a local stereo control indicator 156 comprised of an LED D4 that is mounted on the PC board and is visible through the casing 111 and series connected to V<sub>SS</sub> via resistor R6. The microcontroller 142 is adapted to provide a visual indication, via the local stereo control indicator 156, to the programmer when the microcontroller 142 has received a signal from the local stereo controls 106. --

Please amend the paragraph beginning on page 18, line 6 as follows:

-- Upon the microprocessor 142 determining, in decision state 254, that a local control signal has been received from the local stereo control 106, the microcontroller 142 then matches, in state ~~252~~ 256, the received local control signal with a previously stored output signal in the memory 144. As discussed above in connection with the description of the program mode 210 of the microcontroller 142 in Figure 5A, by sequentially programming each of the stereo controls 106, 114, 130 with the corresponding button on the handheld remote control 160, the microcontroller 142 is able to map these two signals such that the microprocessor 142 is capable of recalling the corresponding output signal from the non-volatile memory 144. In other words, the microcontroller 142, upon receipt of the input signal from the local stereo control 106, recalls, from the memory 144, a digital signal that can then be used to generate an appropriate output signal via the output signal transmitter 154 that will be recognizable by the replacement in-dash stereo 104. --